

Citation:

Are the results of this diagnostic study valid?	
1. Was there an independent, blind comparison with a reference ("gold") standard of diagnosis?	
2. Was the diagnostic test evaluated in an appropriate spectrum of patients (like those in whom it would be used in practice)?	
3. Was the reference standard applied regardless of the diagnostic test result?	

Are the valid results of this diagnostic study important?

SAMPLE CALCULATIONS:

		Target Disorder (iron deficiency anaemia)		Totals
		Present	Absent	
Diagnostic Test Result (serum ferritin)	Positive (<65 mmol/L)	731 a	b 270	a+b 1001
	Negative (≥65 mmol/L)	c 78	d 1500	c+d 1578
Totals		809 a+c	b+d 1770	a+b+c+d 2579

Sensitivity =  $a/(a+c) = 731/809 = 90\%$

Specificity =  $d/(b+d) = 1500/1770 = 85\%$

Likelihood Ratio for a positive test result =  $LR+ = \text{sens}/(1-\text{spec}) = 90\%/15\% = 6$

Likelihood Ratio for a negative test result =  $LR- = (1-\text{sens})/\text{spec} = 10\%/85\% = 0.12$

Positive Predictive Value =  $a/(a+b) = 731/1001 = 73\%$

Negative Predictive Value =  $d/(c+d) = 1500/1578 = 95\%$

Pre-test Probability (prevalence) =  $(a+c)/(a+b+c+d) = 809/2579 = 32\%$

Pre-test-odds =  $\text{prevalence}/(1-\text{prevalence}) = 31\%/69\% = 0.45$

Post-test odds = Pre-test odds x Likelihood Ratio

Post-test Probability =  $\text{Post-test odds}/(\text{Post-test odds} + 1)$

YOUR CALCULATIONS:

		Target Disorder		Totals
		Present	Absent	
Diagnostic Test Result	Positive	a	b	a+b
	Negative	c	d	c+d
Totals		a+c	b+d 1770	a+b+c+d

Sensitivity =  $a/(a+c) =$

Specificity =  $d/(b+d) =$

Likelihood Ratio for a positive test result =  $LR+ = \text{sens}/(1-\text{spec}) =$

Likelihood Ratio for a negative test result =  $LR- = (1-\text{sens})/\text{spec} =$

Positive Predictive Value =  $a/(a+b) =$       Negative Predictive Value =  $d/(c+d) =$

Pre-test Probability (prevalence) =  $(a+c)/(a+b+c+d) =$

Pre-test-odds =  $\text{prevalence}/(1-\text{prevalence}) =$

Post-test odds = Pre-test odds x Likelihood Ratio =

Post-test Probability =  $\text{Post-test odds}/(\text{Post-test odds} + 1) =$

**DIAGNOSIS WORKSHEET: page 2 of 2**

**Can you apply this valid, important evidence about a diagnostic test in caring for your patient?**

Is the diagnostic test available, affordable, accurate, and precise in your setting?	
Can you generate a clinically sensible estimate of your patient's pre-test probability (from practice data, from personal experience, from the report itself, or from clinical speculation)	
Will the resulting post-test probabilities affect your management and help your patient? (Could it move you across a test-treatment threshold?; Would your patient be a willing partner in carrying it out?)	
Would the consequences of the test help your patient?	

**Additional Notes:**